

R E M A R K S

This Amendment is in response to the non-final Office Action (requirement for restriction) that was mailed on January 24, 2002. Applicants elect the invention of Group I, with traverse.

Claims 1-3 and 14-21 are linked so as to form a single general inventive concept under PCT Rule 13.1. Accordingly, all of these claims should be included with Group I. It should be noted that claims 3, 14 and 18 have been amended to depend from claim 1.

The relationship between the claims is as follows:

The alcohol (A11) of formula (2) and the active olefin (B11) of formula (3) in claim 2 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The 1,3-dihydroxy compound of formula (4) in claim 2 corresponds to an oxidized product of the addition reaction product of compound (A) with compound (B) in claim 1.

The alcohol (A11) of formula (2) and the α,β -unsaturated carboxylic acid derivative (B12) of formula (5) in claim 3 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The α -hydroxy- γ -butyrolactone derivative of formula (6) in claim 3 corresponds to the oxidized product of an addition reaction product of compound (A) with compound (B) in claim 1.

The alcohol (A12) of formula (2a) and the active olefin (B13) of formula (3a) in claim 14 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The conjugated unsaturated compound of formula (11) in claim 14 correspond to the addition reaction product of compound (A) with compound (B) in claim 1.

The acetal (A13) of formula (12) and the active olefin (B11) of formula (3) in claim 15 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The β -hydroxyacetal compound of formula (13) in claim 15 corresponds to the oxidized product of an addition reaction product of compound (A) with compound (B) in claim 1.

The compound having a methine carbon atom (A31) of formula (14) and the active olefin (B11) of formula (3) in claim 16 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The compounds of formulae (15) and (16) in claim 16 correspond to the oxidized product of an addition reaction product of compound (A) with compound (B) in claim 1.

The compound having a methine carbon atom (A31) of formula (14) and the active olefin (B15) of formula (3c) in claim 18 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The compound of formula (18) in claim 18 corresponds to an oxidized

product of the addition reaction product of compound (A) with compound (B) in claim 1.

The alcohol (A11) of formula (2) and the compound having a methine carbon atom (B12) of formula (14) in claim 19 correspond to a compound capable of forming a stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The alcohol of formula (19) in claim 19 corresponds to the addition reaction produce of compound (A) with compound (B) in claim 1.

The compound having a methine carbon atom (A32) of formula (14a) and the compound having a methine carbon atom (B22) of formula (14b) in claim 20 correspond to a compound capable of forming stable radical (A) and a radical scavenging compound (B) in claim 1, respectively. The coupling product of formula (20) in claim 20 corresponds to an addition reaction product of compound (A) with compound (B) in claim 1.

Moreover, claim 21, which specifies a metallic compound as a co-catalyst, is by its terms dependent from any one of claims 1 through 3 and 14 through 20.

Accordingly, in view of the above arguments, the Examiner is respectfully requested to withdraw the requirement for restriction or at least to modify it in such a way as to regroup closely related subgroups of compounds within the present generic invention.

Conclusion


If the Examiner has any questions concerning this application, he is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8000 in the Washington, D.C. area.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of one (1) month to March 24, 2002, in which to file a reply to the Office Action. The required fee of \$110.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment:

Version with Markings to Show Changes Made

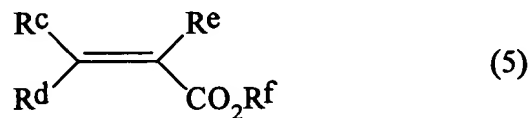
VERSION WITH MARKINGS TO SHOW CHANGES MADEIn the Claims:

The claims have been amended as follows:

3. (Amended) A process for producing [an α -hydroxy- γ -butyrolactone derivative] an organic compound according to claim 1, said process comprising the step of allowing (A11) an alcohol shown by the following formula (2):

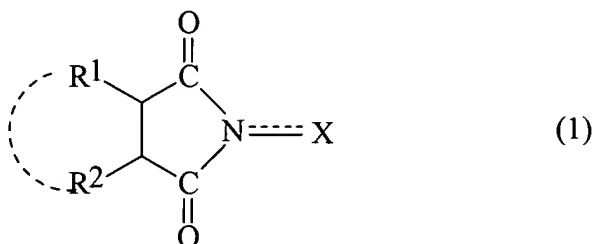


wherein each of R^a and R^b is, identical to or different from each other, a hydrogen atom or an organic group, where R^a and R^b may be combined to form a ring with the adjacent carbon atom, to react with (B12) an α,β -unsaturated carboxylic acid derivative shown by the following formula (5):



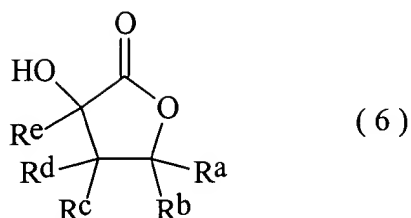
wherein each of R^c , R^d , R^e , and R^f is, identical to or different from one another, a hydrogen atom or an organic group, where R^c , R^d , and R^e may be combined to form a ring with the adjacent carbon atom or carbon-carbon bond,

in the presence of molecular oxygen by catalysis of an imide compound shown by the following formula (1):



wherein each of R^1 and R^2 is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R^1 and R^2 may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R^1 , R^2 , or to the double bond or aromatic or non-aromatic ring formed together by R^1 and R^2 ,

to yield an α -hydroxy- γ -butyrolactone derivative shown by the following formula (6):

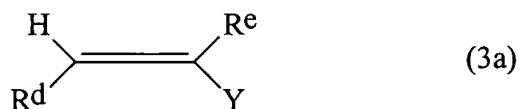


wherein R^a , R^b , R^c , R^d , and R^e have the same meanings as defined above.

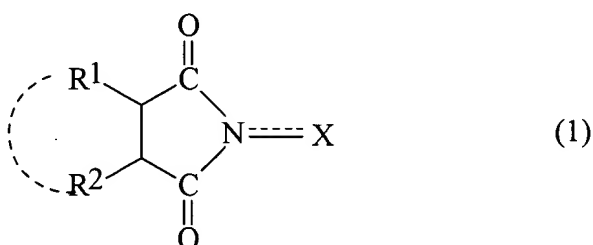
14. (Amended) A process for producing [a conjugated unsaturated compound] an organic compound according to claim 1, said process comprising the step of allowing (A12) an alcohol shown by the following formula (2a):



wherein each of R^i and R^j is, identical to or different from each other, a hydrogen atom or an organic group, where R^i and R^j may be combined to form a ring with the adjacent carbon atom, to react with (B13) an active olefin shown by the following formula (3a):

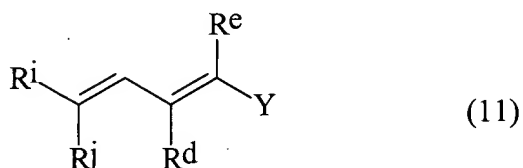


wherein each of R^d and R^e is, identical to or different from each other, a hydrogen atom or an organic group; and Y is an electron attracting group, where R^d , R^e and Y may be combined to form a ring with the adjacent carbon atom or carbon-carbon bond, in the presence of molecular oxygen by catalysis of an imide compound shown by the following formula (1):



wherein each of R^1 and R^2 is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R^1 and R^2 may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R^1 , R^2 , or to the double bond or aromatic or non-aromatic ring formed together by R^1 and R^2 ,

to yield a conjugated unsaturated compound shown by the following formula (11):

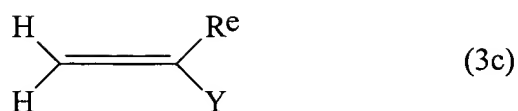


wherein R^d , R^e , R^i , R^j and Y have the same meanings as defined above.

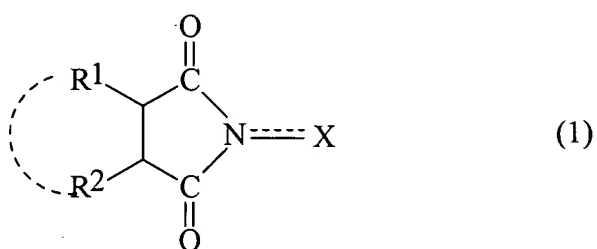
18. (Amended) A process for producing [a compound having an electron attracting group] an organic compound according to claim 1, said process comprising the step of allowing (A31) a compound having a methine carbon atom and being shown by the following formula (14):



wherein each of R^o , R^p and R^q is, identical to or different from one another, an organic group, where R^o , R^p , and R^q may be combined to form a ring with the adjacent carbon atom,
to react with (B15) an active olefin shown by the following formula (3c):

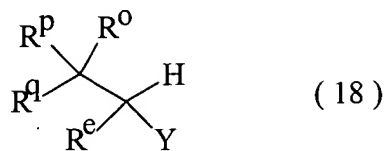


wherein R^e is a hydrogen atom or an organic group; and Y is an electron attracting group, in the presence of molecular oxygen by catalysis of an imide compound shown by the following formula (1):



wherein each of R¹ and R² is, identical to or different from each other, a hydrogen atom, a halogen atom, an alkyl group, an aryl group, a cycloalkyl group, a hydroxyl group, an alkoxy group, a carboxyl group, an alkoxycarbonyl group, or an acyl group, where R¹ and R² may be combined to form a double bond, or an aromatic or non-aromatic ring; X is an oxygen atom or a hydroxyl group; and one or two N-substituted cyclic imido groups indicated in the formula (1) may be further bonded to said R¹, R², or to the double bond or aromatic nor non-aromatic ring formed together by R¹ and R²,

to yield an organic compound shown by the following formula (18):



wherein R^e , R^o , R^p , R^q , and Y have the same meanings as defined above.